

CLAIMS

We claim:

1. An autonomous system communication network that employs Open Shortest Path First protocol to communicate information,
the network comprising:

a first sub-area network that is not a backbone sub-area network;

a second sub-area network that is not a backbone sub-area network;

within the first sub-area network a first splitting router having a first topological database;

within the second sub-area network a second splitting router having a second topological database; and

a link connecting the first splitting router and the second splitting router;

wherein at least one metric common to the first topological database and the second topological database is configured to

allow passage of link-state messages over the link connecting the first splitting router and the second splitting router and to substantially block from passage over the link connecting the first splitting router and the second splitting router messages that are not link state messages.

2. The network of claim 1 wherein the link connecting the first splitting router and the second splitting router is an element of a backbone that carries routing messages between the first sub-area network and the second sub-area network.

3. A splitting router suitable for use in an autonomous system communication network that employs Open Shortest Path First protocol for communicating information, the splitting router comprising:

a topological database;

an Open Shortest Path First processing unit for updating the topological database in response to link state messages;

a splitting router packet processing unit for processing messages received over a link that connects the first splitting router and a second splitting router, and forwarding to the Open Shortest Path First processing unit hello messages received over the link that connects the first splitting router and the second splitting router;

a router packet processing unit for processing messages received over a sub-area network to which the splitting router is connected that is not a backbone sub-area network, and forwarding to the Open Shortest Path First processing unit hello messages received over the sub-area network to which the splitting router is connected; and

a buffer for buffering messages output by the splitting router packet processing unit and the router packet processing unit.

4. The splitting router of claim 4, further comprising:

a splitting router output queue for receiving messages from the buffer and queuing messages received from the buffer in preparation for sending messages received from the buffer over the link connecting the first splitting router and the second splitting router; and

a router output queue for receiving messages from the buffer and queuing messages received from the buffer in preparation for sending messages received from the buffer over the sub-area network to which the splitting router is connected.

5. A routing method suitable for an autonomous system communication network that employs Open Shortest Path First protocol for communicating information, comprising the act of configuring at least one metric in a topological database to allow passage of link state messages on a link between a first splitting router connected to a first sub-area network and a second splitting router connected to a second sub-area network and to substantially block from passage on the link between the first splitting router and the second splitting router messages that are not link state messages.

6. The method of claim 5, wherein the metric comprises a specification of bandwidth on the link between the first splitting router and the second splitting router.

7. The method of claim 5, wherein the act of configuring is responsive to filtering based on Type of Service.

8. The method of claim 5, wherein the metric comprises a measure of round-trip delay experienced by a ping message, and further wherein the measure of round-trip delay is purposefully increased above the delay actually experienced when the ping message is exchanged between the first splitting router and the second splitting router.

9. The method of claim 5, wherein the metric comprises a measure of round-trip delay experienced by a ping message,

and further wherein the round-trip delay experienced by the ping message is purposefully increased by buffering the ping message for a predetermined time when the ping message is exchanged between the first splitting router and the second splitting router.

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